

WHAT IS CLAIMED:

1. A flexible intravascular stent for use in a body lumen, comprising:  
a plurality of cylindrical rings aligned along a common longitudinal axis  
and interconnected to form the stent, each cylindrical ring having a first delivery  
5 diameter and a second implanted diameter;  
each cylindrical ring having a plurality of first peaks and second peaks,  
each of the peaks having a height, the second peaks being shorter than the first peaks;  
and  
at least one undulating link attaching each cylindrical ring to an adjacent  
10 cylindrical ring, the undulating links having a curved portion extending transverse to  
the stent longitudinal axis toward the second peak, the height of the second peak being  
sized so that as the stent is compressed to the first delivery diameter, the curved portion  
is positioned proximal to the second peak.
2. The stent of claim 1, wherein at least one undulating link comprises at  
15 least one curved portion connected to a substantially straight portion, the substantially  
straight portion being substantially perpendicular to the stent longitudinal axis.
3. The stent of claim 2, wherein the substantially straight portion of the at  
least one undulating link is perpendicular to the stent longitudinal axis when the stent  
is in the first delivery diameter configuration.
- 20 4. The stent of claim 2, wherein the substantially straight portion of the at  
least one undulating link is perpendicular to the stent longitudinal axis when the stent  
is in the second implanted diameter configuration.

5. The stent of claim 1, wherein at least one of the undulating links comprise a plurality of curved portions.

6. The stent of claim 1, wherein the first peaks of each cylindrical ring are  
5 in phase with the first peaks of an adjacent cylindrical ring.

7. The stent of claim 1, wherein the undulating links are configured to provide flexibility to the stent.

8. The stent of claim 1, wherein the cylindrical rings are configured to provide flexibility to the stent.

10 9. The stent of claim 1, wherein the stent is formed from a tube.

10. The stent of claim 1, wherein the stent is formed from a flat sheet.

11. The stent of claim 1, wherein the stent is formed from a metal alloy.

12. The stent of claim 11, wherein the stent is formed from any of the group of metal alloys consisting of stainless steel, tantalum, nickel-titanium, cobalt-chromium  
15 and titanium.

13. The stent of claim 1, wherein the stent is formed from a shape memory alloy.

14. The stent of claim 13, wherein the stent is formed from the group of shape memory alloys consisting of nickel-titanium and nickel-titanium-vanadium.

5 15. The stent of claim 1, wherein the stent is formed from a superelastic or pseudoelastic metal alloy.

16. The stent of claim 15, wherein the stent is formed from the group of superelastic or pseudoelastic metal alloys consisting of nickel-titanium and nickel-titanium-vanadium.

10 17. The stent of claim 1, wherein at least a portion of the stent has a variable thickness configuration.

18. The stent of claim 1, wherein at least a portion of the first peaks has a variable thickness configuration.

15 19. The stent of claim 1, wherein at least a portion of the second peaks has a variable thickness configuration.

20. The stent of claim 1, wherein at least a portion of the undulating links has a variable thickness configuration.

21. The stent of claim 1, wherein at least a portion of the cylindrical ring has a variable thickness configuration.

5           22. The stent of claim 1, wherein the first peaks have a first radius and the second peaks have a second radius, the second radius being greater than the first radius.

23. The stent of claim 1, wherein each cylindrical ring has a plurality of third peaks, each of the third peaks having a height, the third peaks being longer than the first peaks and the second peaks.

10           24. The stent of claim 1, wherein each of the first peaks has a pair of first struts and each of the second peaks has a pair of second struts, the first struts being longer than the second struts.

25. The stent of claim 1, wherein each cylindrical ring has a plurality of third peaks and a pair of third struts associated with the third peaks.

15           26. The stent of claim 25, wherein the first peaks have a pair of first struts, the second peaks have a pair of second struts, the third struts being longer than the first struts, and the first struts being longer than the second struts.